

What is claimed is:

1. A method, comprising:

processing a stream of data vectors;

5 generating a visualization from a first group of the data vectors;

determining a set of values corresponding to one or more eigenvectors for a matrix

defined with the first group of the data vectors; and

projecting each member of a second group of the data vectors onto the visualization as a
function of the set of values.

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2. The method of claim 1, which includes representing a number of text documents with the
data vectors.

3. The method of claim 1, which includes representing a number of images with the data

15 vectors.

4. The method of claim 1, wherein said generating includes performing a multidimensional
scaling routine with the first group of the data vectors to generate the visualization in the form of
a scatter plot.

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5. The method of claim 1, wherein said projecting is performed in response to an increase in
rate of receipt of the stream of the data vectors.

6. The method of claim 1, wherein said projecting includes determining a dot product of each member of the second group of the data vectors and at least one of the one or more eigenvectors.

5 7. The method of claim 1, which includes generating a data set representative of a portion of the stream of the data vectors by performing at least one of:

sampling the portion of the stream of data vectors; and

reducing dimension of each of a plurality of the data vectors by wavelet decomposition.

10 8. A method, comprising:

receiving a first portion of a data stream at or below a defined rate;

generating a first visualization from a group of data vectors corresponding to the first portion;

receiving a second portion of the data stream above the defined rate; and

15 generating a second visualization by updating the first visualization with one or more additional data vectors as a function of an eigenspace defined with the group of data vectors, the one or more additional data vectors corresponding to the second portion of the data stream.

9. The method of claim 8, wherein said generating includes determining a dot product

20 between each of the one or more additional data vectors and one or more eigenvectors corresponding to the eigenspace.

10. The method of claim 8, which includes providing a reduced data set by performing at least one of a dimension reduction routine and a sampling routine with a number of data vectors.

11. The method of claim 10, which includes determining error of the second visualization
5 with the reduced data set.

12. The method of claim 11, wherein said determining includes performing a procrustes similarity analysis.

10 13. The method of claim 10, which includes providing a third visualization based on the reduced data set..

14. The method of claim 8, wherein the data stream corresponds to at least one of: a number of text documents and a plurality of images.

15 15. The method of claim 8, wherein the first visualization and the second visualization each corresponding to a different scatter plot.

16. A method, comprising:

20 receiving a data stream;

processing a group of data vectors corresponding to the data stream;

generating a reduced data set which includes reducing dimension of the data vectors with wavelet decomposition; and

providing a representation with the reduced data set corresponding to a visualization of a portion of the data stream.

17. The method of claim 16, which includes visualizing a part of the data stream in accordance with a multidimensional scaling routine.

18. The method of claim 16, which includes performing a similarity analysis with the representation.

19. The method of claim 16, wherein the data stream corresponds to at least one of: a number of text documents and a number of images.

20. The method of claim 16, wherein said generating includes performing the wavelet decomposition with Haar wavelets.

21. A method, comprising:

receiving a data stream;

processing a stream of data vectors corresponding to the data stream;

visualizing at least a portion of the data stream by executing a multidimensional scaling

routine with at least a corresponding portion of the data vectors; and

performing at least one of vector sampling and vector dimension reduction on a group of the data vectors to provide a data set with a reduced number of data elements relative to the group of the data vectors.

22. The method of claim 21, wherein the dimension reduction routine includes wavelet decomposition.

5 23. The method of claim 21, wherein the data stream includes at least one of: a number of text documents and a number of images.

24. The method of claim 21, which includes generating a visualization with the data set.

10 25. The method of claim 21, which includes performing a similarity analysis with the data set.

26. The method of claim 21, which includes updating a visualization provided by said visualizing with one or more additional data vectors as a function of one or more eigenvectors
15 determined from the corresponding portion of the data vectors.

27. An apparatus, comprising: a device carrying logic executable by a processing subsystem receiving a data stream to generate a visualization from a group of data vectors corresponding to a first portion of the data stream received at a first rate and update the visualization as a function
20 of one or more eigenvectors for the group of data vectors and one or more other data vectors corresponding to a second portion of the data stream received at a second rate greater than the first rate.

28. The apparatus of claim 27, wherein the logic is further operable to reduce dimension of another group of data vectors in accordance with a wavelet decomposition routine.

29. The apparatus of claim 27, wherein the device includes a computer accessible disk.

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30. The apparatus of claim 27, wherein the device includes one or more components of a computer network.

31. A system, comprising:

10 a data communication subsystem operable to receive a data stream;
a processing subsystem responsive to the data communication subsystem to generate a visualization output based on a group of data vectors corresponding to a first portion of the data stream, the processing subsystem being further responsive to a rate of receipt of the data stream to modify the visualization output with one or more other data vectors corresponding to a second
15 portion of the data stream as a function of eigenspace defined with the group of data vectors; and
a display device responsive to the visualization output to provide a corresponding visualization.

32. The system of claim 31, wherein the data processing subsystem is further operable to
20 generate a reduced data set from the data stream with at least one of wavelet decomposition and vector sampling.

33. The system of claim 31, wherein the visualization output generated from the group of data vectors is provided in accordance with a multidimensional scaling routine executed by the data processing subsystem.

5 34. An apparatus, comprising:

means for processing a stream of data vectors and generating a visualization from a first group of the data vectors;

means for determining a set of values corresponding to one or more eigenvectors for a matrix defined with the first group of the data vectors; and

10 means for projecting each member of a second group of the data vectors onto the visualization as a function of the set of values.

35. An apparatus, comprising:

means for receiving a data stream;

15 means for processing a group of data vectors corresponding to the data stream;

means for generating a reduced data set which includes reducing dimension of the data vectors in accordance with a wavelet decomposition routine; and

means for providing a visualization as a function of the reduced data set.

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